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BOOK REVIEWS

SOME RECENT BOOKS ON PHYSICS

Elements of Physics. By HENRY A. ROWLAND, Johns Hopkins University, and JOSEPH S. AMES, Johns Hopkins University. Cloth, 12mo. Pp. 263. Price, \$1. American Book Company.

THIS is a work consisting of two parts, Part I being an introduction and sixteen short chapters on the standard branches of physics, and Part II suggestions to teachers as to the what and how of lecture experiments to illustrate the phenomena described in Part I. Tables of physical constants are found in the proper places in Part I.

The Introduction tells what is involved in the study of physics, and then follow two chapters on mechanics, on "Properties of Matter," two on sound, three each on heat and electricity, and five on light. Of the chapters on light two are given to the geometrical consequences of the laws of reflection and refraction, and the others to light as a physical phenomenon. There are a few problems in Part II. As an example, the chapter on the electric current contains phenomenon of electric current shown by heating of wire and disappearance of electric charges, analogy with flow of water, effect on magnetic needle, voltaic cell, hydraulic analogy to voltaic cell, source of energy in cell, thermoelectric currents, thermopile, galvanometer with astatic combination, solenoid, induced magnetism, heating effects of current, arc and glow lamps, electrolysis, electro-plating, laws of electrolysis, discharge through gases, cathode and Roentgen rays, Ohm's law, Wheatstone's bridge schematically and its actual form, induced currents, self-induction, the transformer, induction coil, dynamo, telephone, and microphone.

This is a book for teachers especially. The explanations are quite condensed, and a very large number of subjects are treated, for the space. The technical language of physics is freely used. In this way an important object is attained. Anyone with some acquaintance with the facts of physics will be enabled to get a much *better view of the whole* when he sees them rapidly resumed, placed in the proper order and proportion, and the chains of reasoning, which make physics a science, briefly indicated. This is the strong point and the one where the great attainments of the authors are made most useful to their readers.

It is pointed out in the preface that the laws of physics are too complex to be described from his own experiments by the unaided student; and therefore lecture experiments are all-important and laboratory experiments secondary, at the beginning. This is a fact sometimes overlooked. There are therefore collected in Part II what might be appendices to the chapters of Part I describing how best to show the phenomena which are explained in them.

The names of the authors are a guarantee not only of accuracy in statement of facts, but of right exposition of principles underlying the facts, so far as they are known. It would be superfluous to recommend the book to all having to teach elementary physics.

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